

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A face metadata generating method of generating metadata related to face information of an image, said face metadata generating method being performed on a face image matching system that includes a face image input unit, and a face metadata generating unit that generates the face metadata from the input face image data, said method comprising:

a step of clipping a plurality of different local areas of said image by an area clipping section of the face metadata generating unit, the plurality of different local areas having, as centers, points previously set at regular intervals;

a step of extracting frequency features for the respective local areas by a frequency feature extracting section of the face metadata generating unit; and

a step of projecting feature vectors, which are vectors consisting of said frequency features, onto predefined subspaces using an orthonormal basis matrix by a vector projecting section of the face metadata generating unit;

thereby extracting the projected feature vectors of the respective local areas so as to generate the projected feature vectors as face metadata, said subspaces being predefined by basis vectors obtained by previously dividing a component of each basis vector in the basis matrix by the square root of a corresponding eigenvalue.

2. (Original) The face metadata generating method according to claim 1, wherein power spectral intensities of Fourier frequencies obtained by discrete Fourier transform are extracted as said frequency features.

3. (Original) The face metadata generating method according to claim 1, wherein expansion coefficients obtained by discrete cosine transform are extracted as said frequency features.

4. (Original) The face metadata generating method according to claim 1, wherein expansion coefficients obtained by discrete sine transform are extracted as said frequency features.

5. (Original) The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by principal component analysis for frequency features, and frequency feature vectors are projected onto the specified subspaces to calculate principal component vectors.

6. (Original) The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by independent component analysis for frequency features, and frequency feature vectors are projected onto the specified subspaces to calculate feature vectors.

7. (Original) The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by discriminant analysis for frequency features, and frequency feature vectors are projected onto the specified subspaces to calculate feature vectors.

8. (Cancelled).

9. (Currently Amended) A face image matching system that includes:

an image input unit that inputs a face image into the system;

a face metadata generating unit of generating that generates metadata related to face information of [[an] said input face image, said face metadata generating unit comprising at least:

an area clipping means for clipping section that clips local areas of said input face image, said local areas having, as centers, points previously set at regular intervals;

a frequency feature extracting means for extracting section that extracts frequency features for the areas clipped by said area clipping means section; and

a vector projection ~~means for projecting~~ section that projects feature vectors, which are vectors consisting of the frequency features extracted by said frequency feature extracting ~~means~~ section, onto predefined subspaces using an orthonormal basis matrix; thereby extracting the projected feature vectors of a plurality of different local areas so as to generate the projected feature vectors as face metadata, said subspaces being predefined by basis vectors obtained by previously dividing a component of each basis vector in the basis matrix by the square root of a corresponding eigenvalue; and

a storage unit for storing the extracted face metadata.

10. (Currently Amended) The face ~~metadata-generating-unit~~ image matching system according to claim 9, wherein said frequency feature extracting ~~means~~ section extracts power spectral intensities of Fourier frequencies, obtained by discrete Fourier transform, as frequency features.

11. (Currently Amended) The face ~~metadata-generating-unit~~ image matching system according to claim 9, wherein said frequency feature extracting ~~means~~ section extracts expansion coefficients, obtained by discrete cosine transform, as frequency features.

12. (Currently Amended) The face ~~metadata-generating-unit~~ image matching system according to claim 9, wherein said frequency feature extracting ~~means~~ section extracts expansion coefficients, obtained by discrete sine transform, as frequency features.

13. (Currently Amended) The face ~~metadata-generating-unit~~ image matching system according to claim 9, wherein said vector projection ~~means~~ section projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by principal component analysis for the frequency features, to calculate principal component vectors.

14. (Currently Amended) The face ~~metadata-generating-unit~~ image matching system according to claim 9, wherein said vector projection ~~means~~ section projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by independent component analysis for the frequency features, to calculate the feature vectors.

15. (Currently Amended) The face ~~metadata-generating unit~~ image matching system according to claim 9, wherein said vector projection ~~means~~ section projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by discriminant analysis for the frequency features, to calculate the feature vectors.

16. (Cancelled).

17. (Currently Amended) A computer-readable medium storing program instructions for making a program-controlled computer generate metadata related to face information of an image, said program instructions making said computer realize:

a function for clipping a plurality of different local areas of said image, the plurality of different local areas having, as centers, points previously set at regular intervals;

a function for extracting frequency features for the respective local areas; and

a function for projecting feature vectors, which are vectors consisting of said frequency features, onto predefined subspaces using an orthonormal basis matrix, thereby making said computer extract the projected feature vectors of the respective local areas and generate the projected feature vectors as face metadata, said subspaces being predefined by basis vectors obtained by previously dividing a component of each basis vector in the basis matrix by the square root of a corresponding eigenvalue.

18. (Currently Amended) A face image matching system comprising a face image input unit for inputting a face image, a face metadata generating unit for generating face metadata from an inputted face image, a face metadata storage unit for storing generated face metadata therein, a face similarity calculating unit for calculating a similarity of a face from said face metadata, a face image database for storing said face images, a controller for controlling, in response to a registration request and a retrieval request of the image, input of the image, generation of the metadata, storing of the metadata, and calculation of face similarity, and a display unit for displaying the face image and other information, wherein said face metadata generating unit comprises:

area clipping means for clipping local areas of said face image, the local areas having, as centers, points previously set at regular intervals;

frequency feature extracting means for extracting frequency features for the areas clipped by said area clipping means; and

vector projection means for projecting feature vectors, which are vectors consisting of the frequency features extracted by said frequency feature extracting means, onto predefined subspaces using an orthonormal basis matrix.

whereby said face metadata generating unit extracts the projected feature vectors of a plurality of different local areas so as to generate the projected feature vectors as face metadata, said subspaces being predefined by basis vectors obtained by previously dividing a component of each basis vector in the basis matrix by the square root of a corresponding eigenvalue.